

CLAIMS

1. A gas quenching method, of the type in which a quenching cell (V1) receives objects to be quenched
5 with a quenching gas, and comprising means for supplying pressurized quenching gas, connected to this cell, means for supplying gas comprising a buffer tank (V2) for containing quenching gas, characterized in that, after a quenching operation, all or part of the
10 gas contained in the cell (V1) is recycled as follows:

- a main line connects the cell (V1) to said buffer tank (V2) via a compressor or booster set comprising one or more compressors/boosters in parallel (C1, C2, etc.);

15 - a first intermediate storage tank (V3) receives quenching gas from the cell and feeds the compressor/booster set, and is located on a bypass of the main line;

- after a quenching operation, the contents of
20 the cell (V1) are emptied in one or more operations into the first intermediate storage tank (V3) by partial or complete pressure balancing between the two volumes of the cell (V1) and of the first intermediate storage tank;

25 - the gas stored in said first intermediate storage tank (V3) is transferred to the buffer tank (V2) via the compressor/booster set;

- if necessary, part of the content of the cell (V1) is released to the atmosphere.

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2. The gas quenching method as claimed in claim 1, characterized in that the gas stored in said first intermediate storage tank (V3) is transferred to the buffer tank (V2) during a phase in which the quenching
35 cell (V1) is immobilized in the course of the gas quenching method or during load transfers.

3. The gas quenching method as claimed in either

of claims 1 and 2, characterized in that an inflatable tank (V4) also located on a bypass of the main line, receives gas from the cell (V1) via a vacuum pump (P1) delivering either to a vent or to said inflatable tank (V4), and in that the inflatable tank is used as follows: after said one or more partial emptyings of the content of the cell (V1) into the first intermediate storage tank (V3), and in order to lower the pressure in the cell (V1) below atmospheric pressure, the gas contained in the cell (V1) is transferred to the inflatable tank in one or more operations as follows:

- gas present in the cell (V1) is recovered from the inflatable tank (V4) using the vacuum pump (P1), the inflatable tank (V4) being disconnected from the compressor/booster set, and then

- the gas present in the inflatable tank (V4) is emptied using the compressor/booster set, the inflatable tank (V4) being disconnected from the vacuum pump (P1).

4. The gas quenching method as claimed in one of the preceding claims, characterized in that said quenching gas is a gas mixture, and in that a low pressure mixing module supplies the compressor/booster set with gas mixture (M1), and in that the mixing module comprises a dedicated tank for storing the fresh mixture thus synthesized.

5. The gas quenching method as claimed in claim 4, characterized in that said dedicated tank is filled in parallel sequence time in relation to the progress of the other phases of the method.

6. The gas quenching method as claimed in claim 5, characterized in that the quantity of synthesized fresh gas is controlled by the pressure in the dedicated tank.